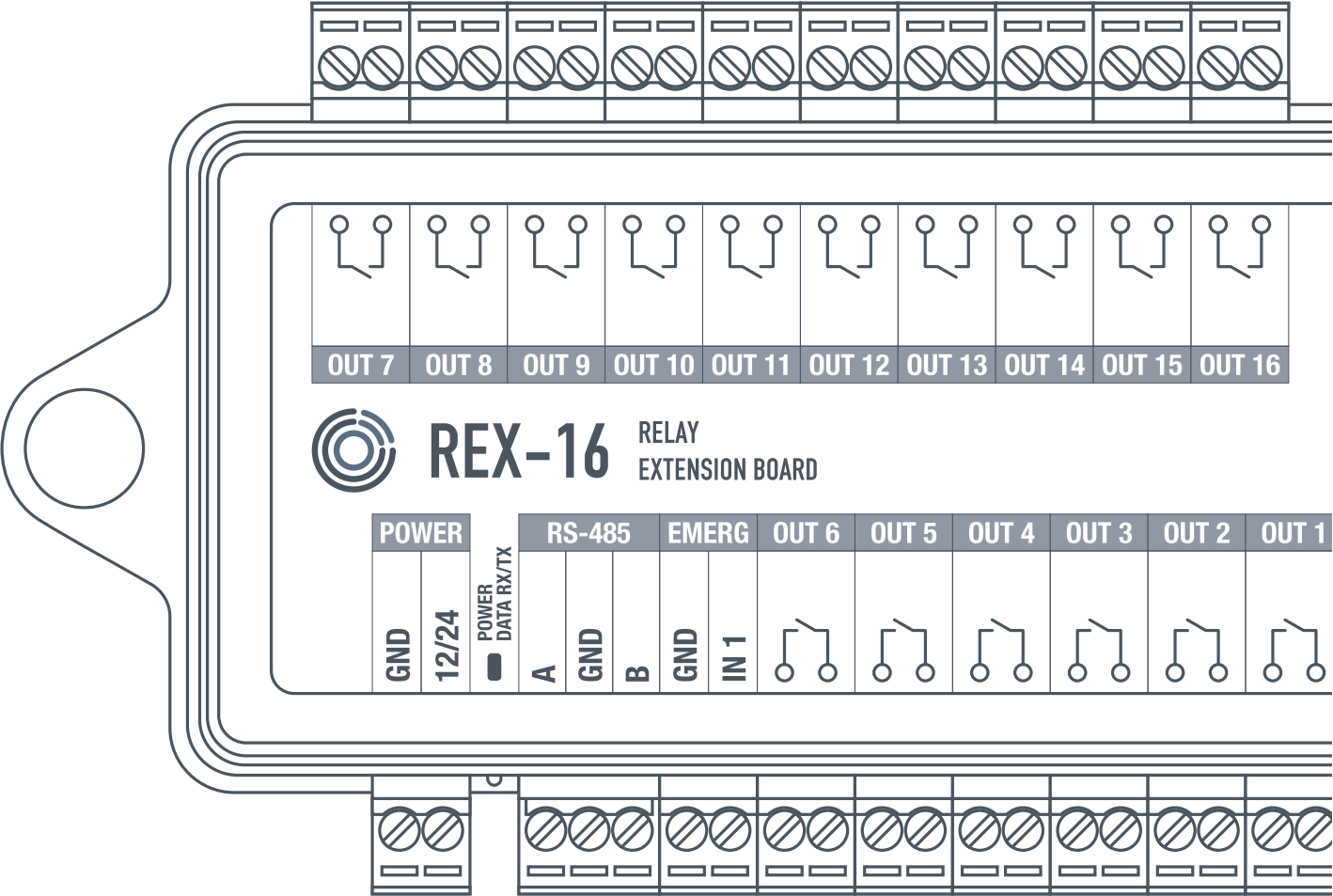


MANUAL



REX-16

16CH Relay Extension board

CONTENTS

• Introduction	3
• Device Specifications	3
• Default Device Settings	3
• Device Dimensions	4
• Device Connection Terminals	5
• Installation Recommendations:	
◦ Connecting Power to the Device	6
◦ Connecting Open Supervised Device Protocol (OSDP)	6
◦ Connecting Electric Locks	6
◦ Protection Against High Current Surges	6
◦ Configuring REX-16	6
• Connection Diagram to the ICON-Pro	7
• Configuring REX-16 via the Controller Web Interface	8
• Configuring REX-16 in the Cloud Service	9
• For Notes	12
• Safety and Legal Notice	13
• Appendix: Important Notices	14

Did you find an error or have a question? Please email us at <https://support.lumiring.com>.

Introduction

This document provides detailed information on the ICON-Pro Controller device structure and steps for installing and connecting it.

It also includes instructions for preventing or troubleshooting many common problems. This guide is for informational purposes only, and the actual product takes precedence in case of any discrepancies.

All instructions, software, and functionality are subject to change without prior notice. The latest version of the manual and additional documentation can be found on our website or by contacting customer support.

The user or installer is responsible for complying with local laws and privacy regulations when collecting personal data while using the product.

Device Specifications

Voltage:

- 12 or 24 VDC operation
- 0.3A @ 12 VDC, 0.15A @ 24 VDC current consumption

Outputs:

- Sixteen (16) dry form "A" -.-A rated relay outputs. 3A @ 30 VDC

Communication interfaces:

- OSDP via RS-485

Dimensions (L x W x H):

- 5.9" x 3.15" x 1.38" (150 x 80 x 35 mm)

Mounting method:

- Wall mount/Din rail mount (option)

Weight:

- 6.75 oz (191 g)

Temperature:

- Operation: -40°F ~ 149°F (-40°C ~ 65°C)
- Storage: -40°F ~ 158°F (-40°C ~ 70°C)

Relative humidity

- 5-85 % RH without condensation

Ingress protection rating:

- IP 20

Default Device Settings

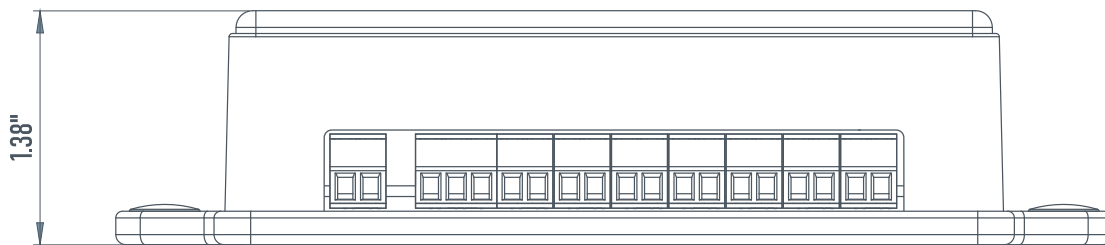
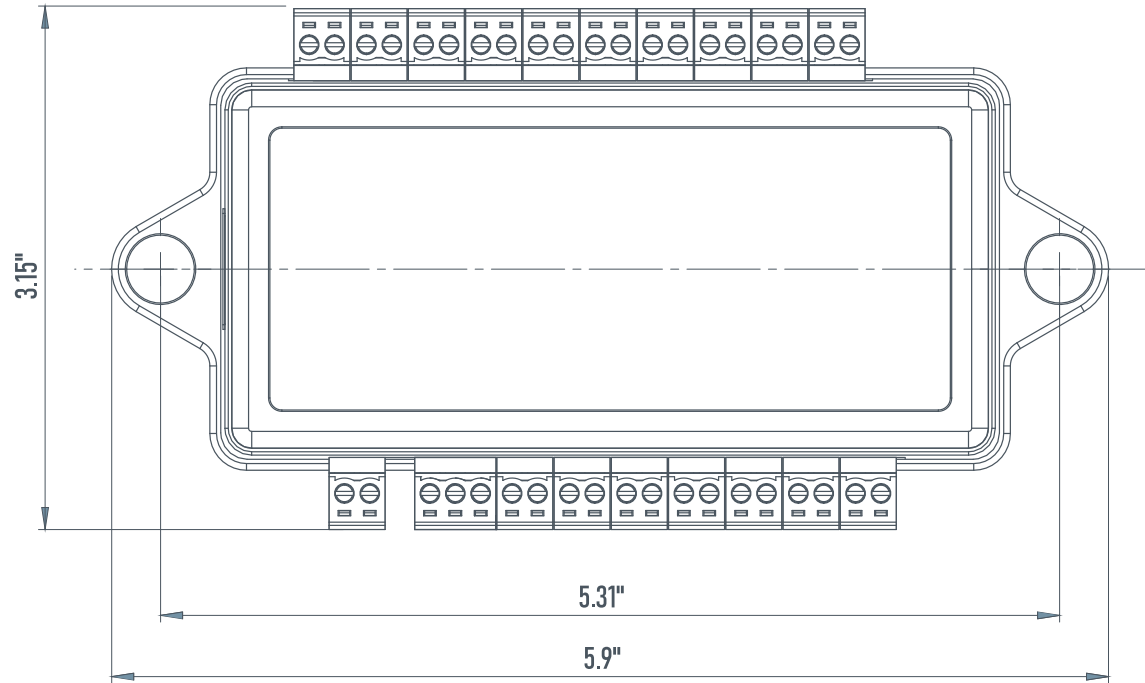
Default address:

- 1

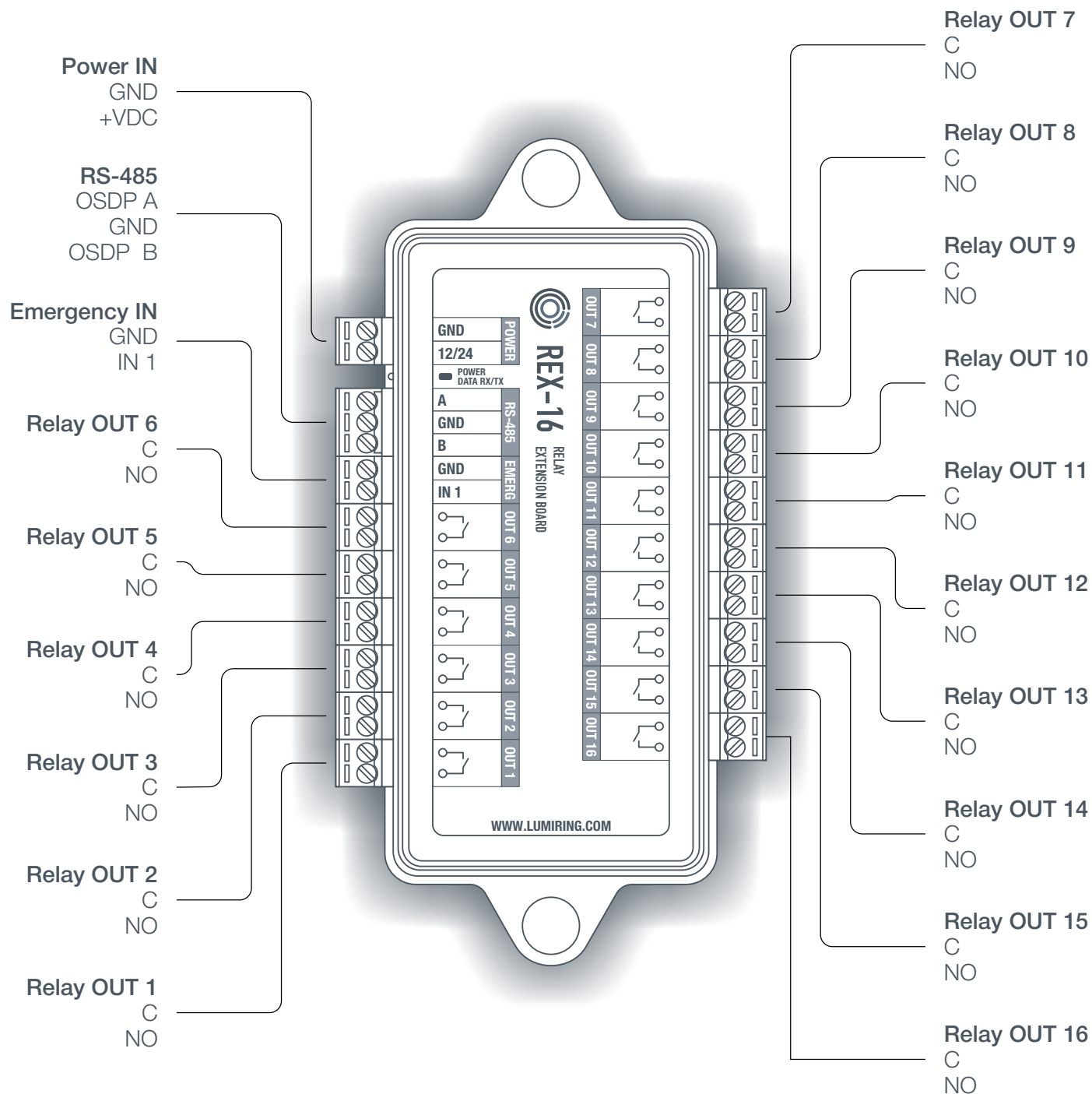
Baud rate:

- 38400

Device Dimension



Device Connection Terminals



Installation Recommendations

The REX-16 is an output expansion relay module that supports the OSDP protocol. It connects to ICON and ICON-Pro series controllers via RS-485 interface.

Connecting Power to the Device

- A power cable with a suitable cross-section is used to supply the current consumption of the connected devices. Make sure to use two separate power supplies for the device and the actuators.

Connecting Open Supervised Device Protocol (OSDP)

- The OSDP uses an RS-485 interface that is designed for long-distance communications. It operates at up to 3,280 ft (1,000 m) with good resistance to noise interference.
- The OSDP communication line should be far from power cables and electric lights. A one-twisted pair, shielded cable, 120 impedance, 24 AWG should be used as the OSDP communication line (if possible, ground the shield at one end).

Connecting Electric Locks

- Connect devices via relays if galvanic isolation from the device is needed or if you need to control high-voltage devices or devices with significant current consumption.
- To ensure reliable system operations, it is best to use one power source for the controllers and a separate one for the actuators.

Protection Against High Current Surges

- A protective diode protects the devices from reverse currents when triggering an electromagnetic or electromechanical lock. A protective diode or varistor is installed near the lock parallel to the contacts.
- **THE DIODE IS CONNECTED IN REVERSE POLARITY.**

Diodes: (Connect in reverse polarity)	SR5100, SF18, SF56, HER307, and similar.
Varistors: (No polarity required)	5D330K, 7D330K, 10D470K, 10D390K, and similar.

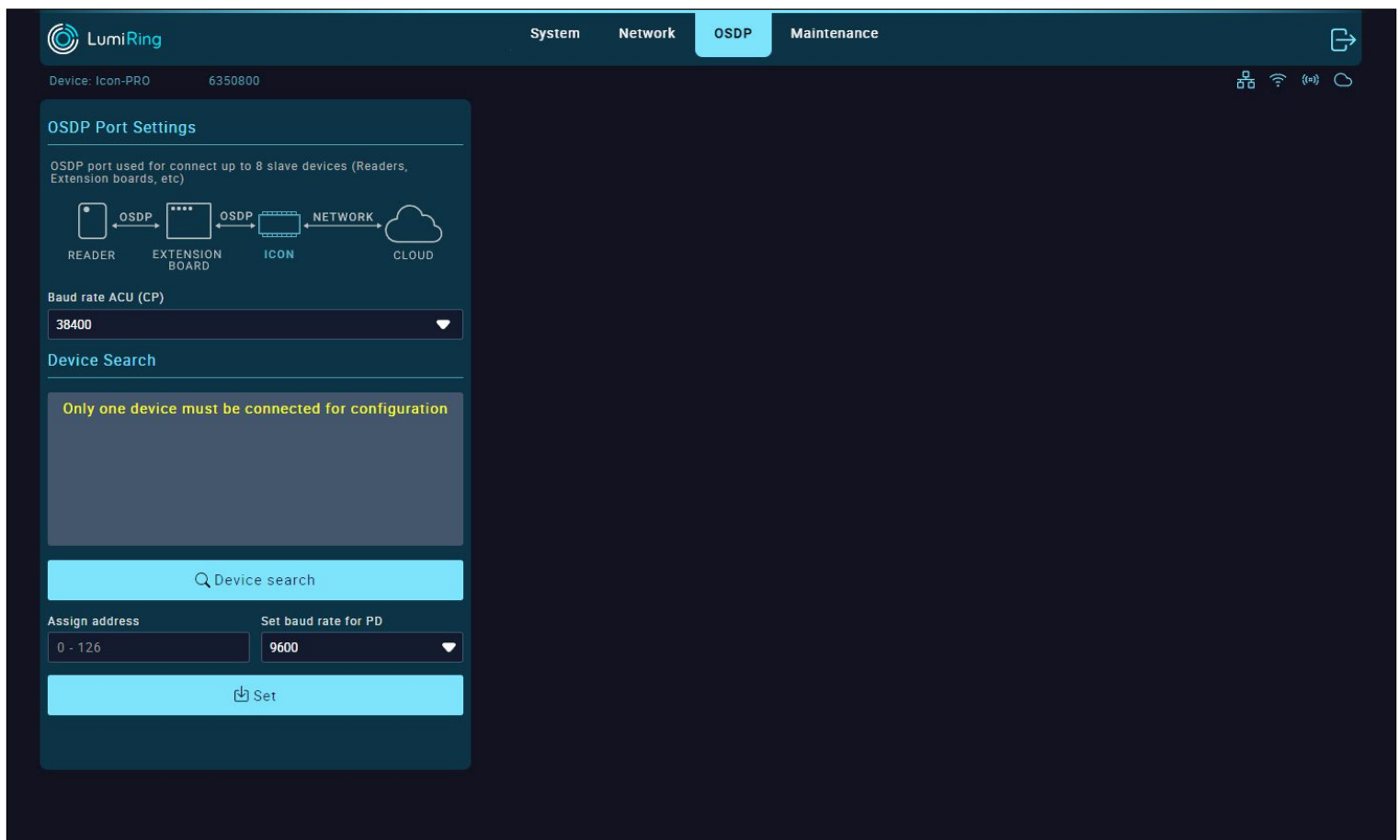
Configuring REX-16

- The relay module is configured through the embedded web interface of the controller to which it is connected in the OSDP section using a tool that allows you to set the address and baud rate.

(For more details, see the **ICON-Pro manual. page 22. **OSDP section**.)*



Configuring REX-16 via the Controller Web Interface



The "Open Supervised Device Protocol (OSDP)" section can be used to search for devices connected via the RS-485 interface. This tool allows you to assign the address and baud rate.

You must first set the addressing and baud rate of the OSDP devices you want to use with the Controller.

It is important to note that the "Address" of all OSDP devices must be unique, and the "Baud rate" must be the same.

- Connect the first OSDP device to the controller according to the wiring diagram.

Note: Only one OSDP device can be connected to the Controller during the search; otherwise, the device may not be detected.

- Select the ACU baud rate to match the OSDP device and click the "Device search" button.

If the search results do not find an OSDP device, change the ACU baud rate and click the "Device search" button again.

- When a device is found, assign it an "Address," select the desired "Baud rate," and click the "Set" button.

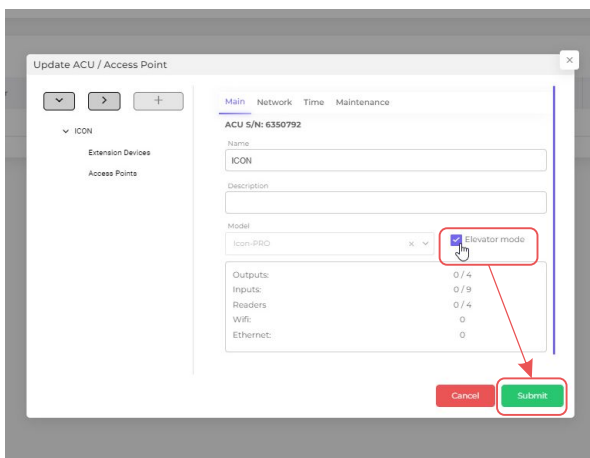
Disconnect the first OSDP device and connect the next one.

- Repeat the operation with all OSDP devices.
- Once you individually set different addresses and the same baud rate for all OSDP devices, they can be connected to the Controller.

Further configuration and communication with the devices are done via the cloud service.

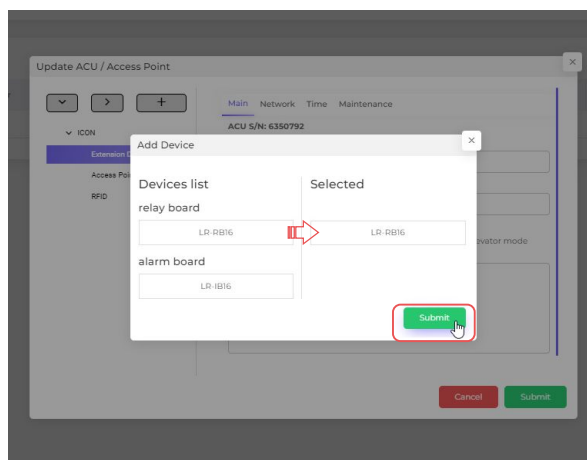
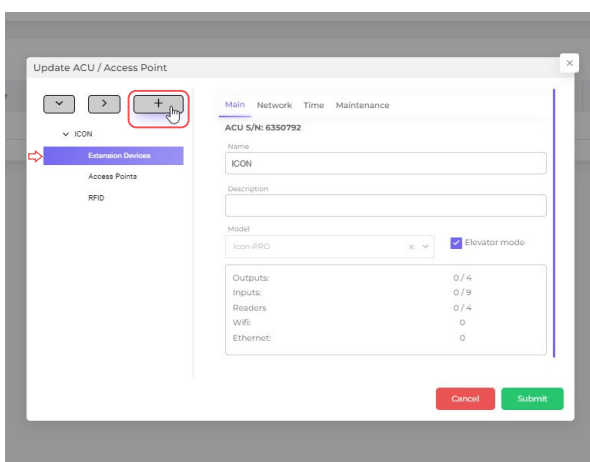
The OSDP section is under development and will be available soon. Watch for updates.

Configuring REX-16 in Cloud Service



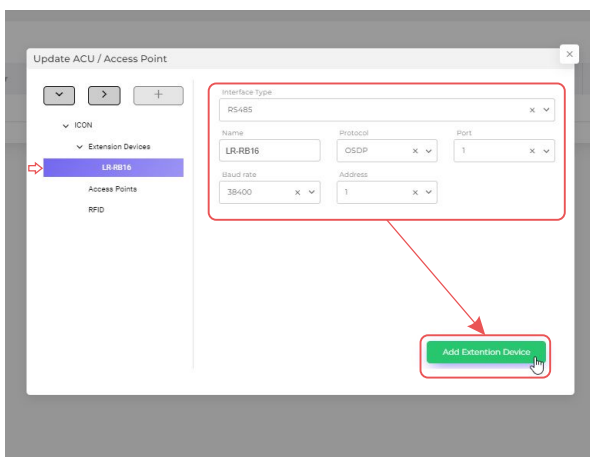
Switch the controller to elevator mode:

- Ensure no access points are previously created in the controller. If any exist, delete them before proceeding.
- Navigate to the Access Points section.
- Select the controller and access its settings.
- Check the Elevator Mode option.
- Click Submit.



Add the relay board:

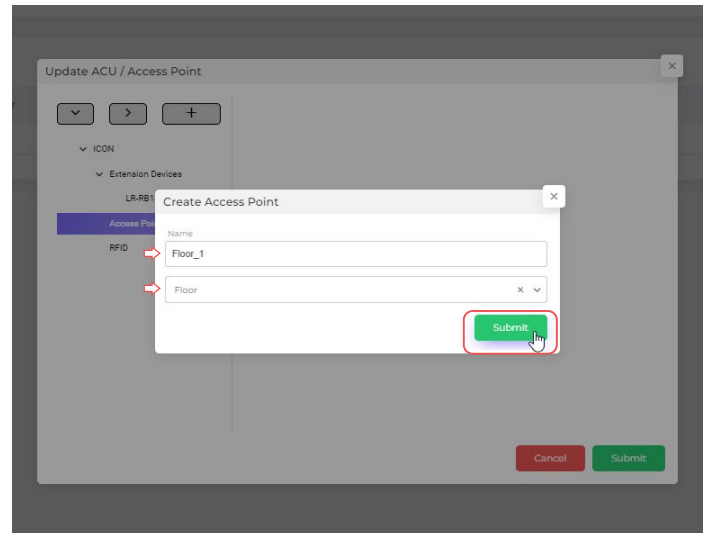
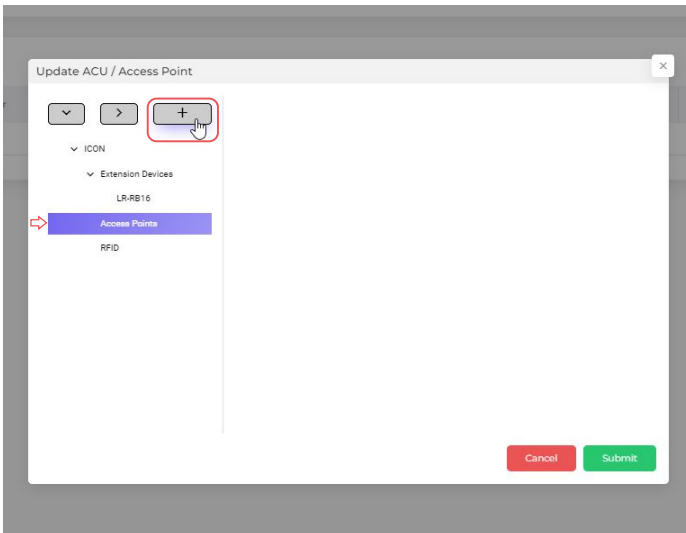
- Select the controller and access its settings.
- Choose Extension Device and click the "+" button above.
- Double-click on the LR-RB16 relay board to select it.
- Click Submit.



Configure the relay board:

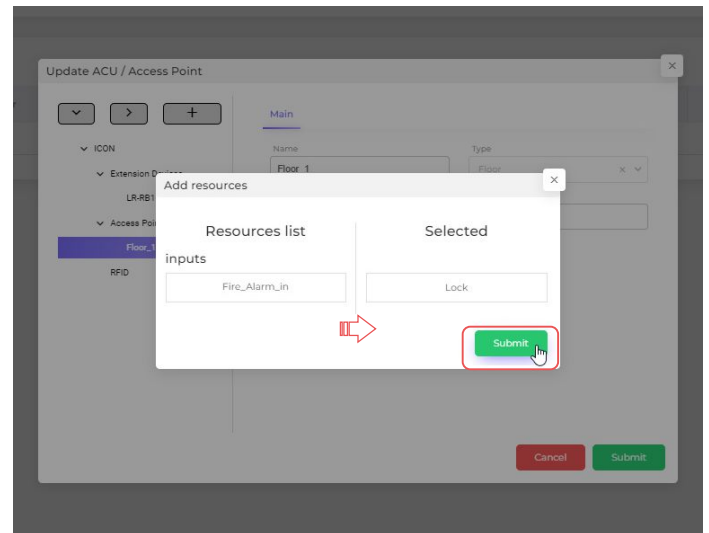
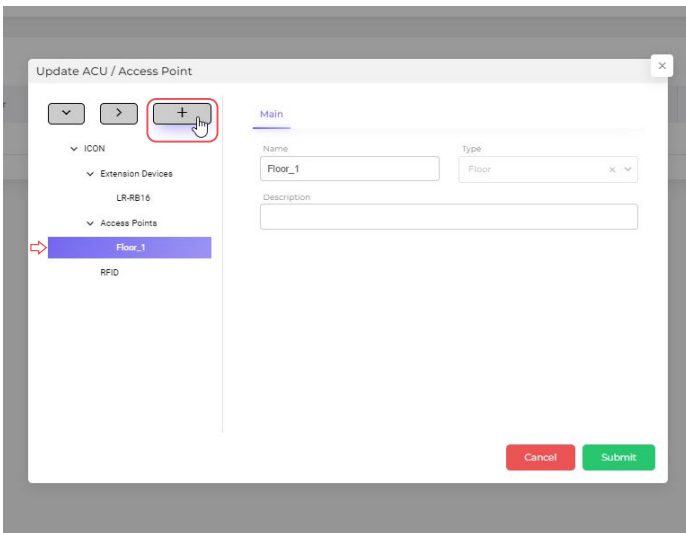
- Select the LR-RB16 relay board.
- Set the Interface Type to RS-485.
- Choose the OSDP protocol.
- Specify the Port as 1.
- Select the baud rate (default is 38400).
- Enter the OSDP address for the relay board.
- Click Add Extension Device.

Configuring REX-16 in Cloud Service



Create a floor:

- Go to Access Points and click the "+" button above.
- Enter the floor name.
- Choose Floor as the Access Point Type.
- Click Submit.



Select the resource type for the floor:

- Select the floor and click the "+" button above.
- Double-click on the Lock output to select it.
- Click Submit.

Configuring REX-16 in Cloud Service

Update ACU / Access Point

Component source: LR-RB16

Relay mode: Trigger

Impulse Duration in seconds: 1

Hold Duration in seconds: 0

Door sensor autolock: ☐

Lock

Cancel Submit

Update ACU / Access Point

Component source: LR-RB16

Relay mode: Trigger

Impulse Duration in seconds: 1

Hold Duration in seconds: 5

Door sensor autolock: ☐

Submit

Assign the relay output for the floor:

- Select Lock.
- Choose LR-RB16 from the Component Source list.
- Select the output.
- Set Relay Mode to Trigger.
- Specify the duration of the hold time (1-60 seconds).
- Click Submit.

Update ACU / Access Point

Interface type: Wiegand 4bit

Reader Type: RFID

Port: Wiegant port 1

Mode: Input

Direction: entry

Reverse byte order: ☒ Enable CRC: ☒ Enable buzzer: ☒

RFID

Cancel Submit

Update ACU / Access Point

Interface type: Wiegand 26bit

Reader Type: RFID

Port: Wiegant port 1

Mode: Input

Direction: entry

Reverse byte order: ☐ Enable CRC: ☐ Enable buzzer: ☐

Submit

Configure the reader:

Note: In elevator mode, the controller automatically creates a reader resource with default settings. The reader resource cannot be deleted, but its settings can be changed.

- Set the Interface Type to the required Wiegand type.
- Uncheck any options for byte order reversal, CRC, and Buzzer.
- Click Submit.

PROFESSIONAL / COMMERCIAL USE ONLY

This product is intended, marketed, and sold only for professional installation and commercial, industrial, institutional, or business access-control use. It is not intended, marketed, or sold as a consumer product. Any purchase or use confirms buyer is acting for commercial, professional, industrial, institutional, or business purposes.

SAFETY AND APPLICATION LIMITATIONS

This product is an access-control component. It is not a complete access-control system, life-safety device, fire alarm, emergency egress device, or UL 294-listed system unit.

Installation, system design, equipment selection, fail-safe/fail-secure configuration, code compliance, AHJ approval, and testing are the sole responsibility of installer/integrator/system designer.

This product must not be connected to critical entry, exit, barrier, elevator, gate, or emergency egress control as the sole release mechanism without alternate exit means and code approval.

WIRELESS PERFORMANCE

Wireless communication may be affected by RF interference, jamming, distance, obstacles, and site conditions. Range and performance are site-dependent and not guaranteed. Do not use as sole communication path for life-safety or emergency-egress functions.

CYBERSECURITY

Default credentials are for initial setup only and must be changed before deployment. Installer/operator is responsible for device security and credential management.

FIRMWARE UPDATES

Firmware updates may change device behavior. Complete system must be tested before return to service. Do not interrupt updates.

EXPORT CONTROL

This product may be subject to U.S. export control and sanctions laws. Export, re-export, transfer, or use contrary to applicable law is prohibited.

WARRANTY EXCLUSIONS

Warranty does not cover damage, malfunction, or performance issues caused by surge, lightning, water intrusion, incorrect voltage, reverse polarity, improper wiring, improper grounding, unauthorized modifications, abuse, misuse, failure to follow documentation, or use outside rated conditions.

This product is sold subject to New York law.

1. DOCUMENT PRECEDENCE

In any conflict between marketing materials and technical documentation, the current technical documentation prevails.

2. PRODUCT AUDIENCE AND BUYER RESPONSIBILITY

Lumiring products are professional access control devices for system integrators and technically proficient users. Buyer is responsible for verifying product suitability, functionality, compatibility, and compliance with requirements before purchase and deployment.

3. THIRD-PARTY INTEGRATION AND COMPONENTS

Integration with third-party platforms (Home Assistant, Node-RED, custom servers, etc.) requires buyer-side configuration via documented APIs. Compatibility with third-party readers, locks, controllers, and software depends on third-party manufacturer implementation and is buyer responsibility to verify. Lumiring is not responsible for third-party product compatibility, changes, or functionality.

4. RETURNS AND RMA PROCESS

Returns require prior RMA authorization from Lumiring and must be initiated within the period stated on the invoice or applicable warranty terms. Lumiring may require reasonable troubleshooting before issuing an RMA.

An RMA or accepted return does not mean warranty coverage, refund, or replacement approval. Buyer pays return shipping, duties, fees, taxes, and insurance unless Lumiring agrees otherwise in writing. Products must be returned in reasonable condition with applicable accessories unless Lumiring authorizes otherwise.

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For sales outside the United States, buyer is responsible for all customs duties, import taxes, VAT, brokerage fees, and compliance with local import/export regulations. Lumiring does not reimburse duties, taxes, shipping or fees paid by buyer.

6. WARRANTY AND LIMITATION OF LIABILITY

Complete warranty terms, return process, exclusions, and liability limitations are subject to Lumiring Inc Terms And Conditions, Limited Warranty, Limited Liability, and Limited License.

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This product is sold subject to Lumiring Inc Terms and Conditions, Limited Warranty, Limited Liability, and Limited License, and governed by New York law.